

**BEFORE THE MISSOURI DEPARTMENT OF NATURAL RESOURCES**

IN THE MATTER OF: )  
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)  
Union Electric Company d/b/a ) No. APCP-2015-034  
Ameren Missouri )  
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**CONSENT AGREEMENT**

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The issuance of this Consent Agreement No. APCP-2015-034 (“Consent Agreement” or “Agreement”) by the Missouri Department of Natural Resources (“Department”) is a formal administrative action taken by the State of Missouri after conference with Ameren Missouri (“Ameren”). The parties agree this Consent Agreement is being issued to administer, implement, and enforce the purposes of the Missouri Air Conservation Law, Chapter 643, RSMo, and its implementing regulations. The parties agree that this Agreement is being issued as an administrative order under 643.060(4), RSMo. Ameren further agrees that a failure to comply with this Agreement is a violation of the Missouri Air Conservation Law under Section 643.151, RSMo.

**BACKGROUND**

In June 2010, the Environmental Protection Agency (“EPA”) promulgated the 1-hour Sulfur Dioxide (SO<sub>2</sub>) primary National Ambient Air Quality Standard of 75 parts per billion (ppb) (“2010 SO<sub>2</sub> NAAQS”). The Department measures air quality through a network of ambient air quality monitors throughout Missouri. One monitor, known as the “Mott Street Monitor,” measured SO<sub>2</sub> values above the 2010 SO<sub>2</sub> NAAQS. These values were primarily attributable to the Doe Run Herculaneum primary Lead smelter, which was located in close proximity to the Mott Street Monitor. In August 2013, an area in Jefferson County, Missouri, around the Mott Street Monitor was designated a Non-Attainment Area. In accordance with the federal Clean Air

Act, 42 U.S.C. § 7410, et seq., as amended, the Department must develop a State Implementation Plan regarding the 2010 SO<sub>2</sub> NAAQS. In December 2013, the Doe Run Herculanum primary Lead smelter ceased operations pursuant to a federally enforceable consent decree. Since the closure of this smelter, the monitored values at the Mott Street Monitor have been significantly lower and are expected to remain below the 2010 SO<sub>2</sub> NAAQS of 75 ppb. In 2014, the one-hour daily maximum measured SO<sub>2</sub> concentration value at the Mott Street Monitor was 23 ppb, significantly below the 2010 SO<sub>2</sub> NAAQS of 75 ppb. Although the main control strategy for the Non-Attainment Area (i.e. the closure of the smelter) has already been implemented, under the Clean Air Act, Missouri must still address the modeled impact from other SO<sub>2</sub> emission sources in and around the Jefferson County Non-Attainment Area in order to ensure that the area will attain the standard. In particular, Ameren's Rush Island Energy Center is located within the geographical boundaries of the Jefferson County Non-Attainment Area. Additionally, Ameren's Meramec Energy Center and Labadie Energy Center are located outside of the geographical boundaries of the Jefferson County Non-Attainment Area, but are close enough to the Jefferson County Non-Attainment Area to also have modeled impacts. Therefore, the Department and Ameren enter into this Consent Agreement whereby Ameren agrees to accept lower SO<sub>2</sub> emissions limits at the three energy centers mentioned above and install and operate an SO<sub>2</sub> monitoring network around the Rush Island Energy Center within the time schedules as set forth in this Consent Agreement.

In consideration of Ameren's agreement herein, the Department agrees to accept the implementation of the agreed to limits and commitment to monitoring around Rush Island Energy Center as sufficient under current information and belief, to demonstrate attainment and maintenance of the 2010 SO<sub>2</sub> NAAQS, as specified in 40 C.F.R. § 50.17, relating to the Jefferson

County Non-Attainment Area. The Department reserves the right to re-assess this conclusion as additional monitoring data becomes available.

### **AGREEMENT**

1. **SO<sub>2</sub> Emission Limits.** The parties agree that no later than January 1, 2017, Ameren shall limit SO<sub>2</sub> emissions as specified below in Table 1. The Department is currently pursuing a rulemaking action which will promulgate the Table 1 emissions limits. The parties agree that upon the date that the proposed rule (proposed at 10 CSR 10-6.261) containing the emissions limits in Table 1, is adopted by EPA as a State Implementation Plan revision, this paragraph and Table 1 will automatically terminate and the state regulation will control.

**Table 1—SO<sub>2</sub> Emissions Limits**

Source	Source ID	Emission Limit per Source/Unit (Pounds SO <sub>2</sub> per Hour)	Averaging Time
Ameren Missouri— Labadie Energy Center	071003	40,837	24 hour block average
Ameren Missouri— Meramec Energy Center	1890010	7,371	24 hour block average
Ameren Missouri— Rush Island Energy Center	0990016	13,600	24 hour block average

2. **Reservation of Rights Regarding Adjustment of Table 1 Emission Limits.** The parties agree that nothing herein shall preclude the Department from taking regulatory action, including but not limited to a rulemaking, to seek additional emission reductions for 2010 SO<sub>2</sub> NAAQS Jefferson County attainment purposes beyond the SO<sub>2</sub> emission limits set

forth in Table 1, currently proposed in 10 CSR 10-6.261. Ameren reserves all rights to oppose, challenge, or contest such future regulatory action.

**3. Monitoring Network and Meteorological Data Requirements at Rush Island Energy**

**Center.** With respect to the Rush Island Energy Center, the parties agree that Ameren will voluntarily install, operate, and maintain, at its expense, ambient SO<sub>2</sub> air quality monitors, at locations representative of Rush Island Energy Center's SO<sub>2</sub> air quality impact, and meteorological (MET) monitoring station(s) (hereafter referred to together as "SO<sub>2</sub> Monitoring Network"). The SO<sub>2</sub> monitoring network installed shall begin operation on or before December 31, 2015, and shall operate for a minimum of 12 consecutive quarters. Ameren shall use its best efforts to promptly submit SO<sub>2</sub> monitoring network site locations and the Department shall use its best efforts to promptly review all SO<sub>2</sub> monitoring network site locations. The SO<sub>2</sub> Monitoring Network shall be installed, operated, and maintained in accordance with a Department approved Quality Assurance Project Plan ("QAPP") as detailed more fully in Appendix A.

**4. Ambient Air Quality Analysis Requirements.** The parties agree that for any ambient air quality analysis conducted pursuant to this Consent Agreement, such analysis shall be conducted using the most current version of the USEPA approved air quality dispersion models [i.e. AERMOD, AERMAP, and AERMET] and default modeling options unless Ameren demonstrates from data collected from SO<sub>2</sub> and meteorological monitors that other methodologies are more appropriate, as detailed more fully in Appendix 2.

## 5. Compliance and Enforcement Requirements

a. **Reporting Elevated Monitoring Values:** The parties agree that for the purposes of this Consent Agreement, an elevated monitoring value shall mean one occurrence of a measured SO<sub>2</sub> concentration that exceeds 75 ppb for one hour. When an elevated monitoring value at one of the monitoring locations of the SO<sub>2</sub> Monitoring Network is **greater than** 75 (ppb), Ameren shall report the monitored information (the beginning and ending date and time, and the value for the applicable standard time period, and the corresponding meteorological data) within 10 days of the event to the Department. The Department recognizes that at the time of submission, the data will not yet be fully quality assured. Furthermore, the parties agree that Ameren will submit an analysis of the monitored information and any relevant operational information to the Department in accordance with the following schedule:

- i. For values **less than** 86 ppb, Ameren shall submit such analysis on a *quarterly basis* in accordance with the normal data submittal as defined in the QAPP.
- ii. For values **greater than or equal to** 86 ppb, Ameren shall submit such analysis within *30 calendar days* of the event using quality assured data.

b. **Requirements for Monitored SO<sub>2</sub> Monitoring Network Values Above 75 ppb:**

- i. If the annual 4<sup>th</sup> high monitored value is less than 86 ppb and is greater than 75 ppb, Ameren shall submit an ambient air quality analysis within 45 days of the collection of twelve (12) months of preliminary monitored data and corresponding MET data. The parties shall then meet and confer to discuss

the ambient air quality analysis. In the event that the parties agree that Rush Island's generating units are a cause of such monitored values, within 10 days of agreement, Ameren shall submit to the Department for consideration: proposed potential mitigation measures, SO<sub>2</sub> emissions limitations, and a schedule that provides for compliance with the 2010 SO<sub>2</sub> NAAQS within 6 months of the date of submittal. In the event that the parties do not reach an agreement, the parties' rights are reserved pursuant to paragraph 2.

- ii. If the annual 4<sup>th</sup> high monitored value or if the 4<sup>th</sup> high monitored daily value for the year to date, is greater than or equal to 86 ppb, Ameren shall submit an ambient air quality analysis within 45 days of the collection of six (6) months of preliminary monitored data and corresponding MET data. The parties shall then meet and confer to discuss the ambient air quality analysis. In the event that the parties agree that Rush Island's generating units are a cause of such monitored values, within 10 days of agreement, Ameren shall submit to the Department for consideration: proposed potential mitigation measures, SO<sub>2</sub> emissions limitations, and a schedule that provides for compliance with the 2010 SO<sub>2</sub> NAAQS within 6 months of the date of submittal. In the event that the parties do not reach an agreement, the parties' rights are reserved pursuant to paragraph 2.

- c. The parties agree that any SO<sub>2</sub> emission limits or operating conditions identified as a result of an ambient air quality analysis performed under this Consent Agreement shall be based on quality assured ambient and emissions data.

d. If the SO<sub>2</sub> Monitoring Network required by this Consent Agreement is not installed and operational by December 31, 2015, Ameren shall submit to the Department an ambient air quality analysis conducted pursuant to paragraph 4. The parties shall meet and confer to discuss the analysis and SO<sub>2</sub> emission limits that provide for attainment of the 2010 SO<sub>2</sub> NAAQS by January 1, 2017. In the event that the parties do not reach an agreement regarding SO<sub>2</sub> emissions limits, the parties' rights are reserved pursuant to paragraph 2.

e. Any additional reporting of monitoring and MET data required in response to the elevated monitored values described above is in addition to regular reporting requirements as specified in the approved QAPP.

#### **OTHER PROVISIONS**

6. The parties agree that this Consent Agreement will be submitted to the EPA as part of a State Implementation Plan revision, as required in 42 U.S.C. § 7401, et seq., to demonstrate attainment and maintenance of the 2010 SO<sub>2</sub> NAAQS, and will become federally enforceable upon EPA approval.
7. The parties agree that this Consent Order will be enforced according to the terms herein, as provided by law, notwithstanding any pending rulemakings or legislation.
8. The parties agree that this Consent Agreement shall not be construed as a waiver or a modification of any requirements of the Missouri Air Conservation Law and regulations or any other source of law, including but not limited to any Missouri law for affected sources located in undesignated areas that have elected to use monitoring to evaluate ambient air

quality, and that this Consent Agreement does not resolve any claims based on any failure by Ameren to meet the requirements of this Consent Agreement, or claims for past, present, or future violations of any statutes or regulations.

9. Nothing in this Consent Agreement is intended to constitute an admission or statement by Ameren that the Rush island Energy Center or any other Ameren generating unit has adversely impacted or has the potential to adversely impact the 2010 SO<sub>2</sub> NAAQS in the Jefferson County Nonattainment Area. Rather, this Consent Agreement is intended to facilitate the voluntary collection of data so as to assist the State of Missouri with assessing the existing air quality within and around the currently designated non-attainment area in the vicinity of Rush Island based upon accurate and representative data.
10. The provisions of this Consent Agreement shall apply to and be binding upon the parties executing this Consent Agreement, their agents, subsidiaries, successors, assigns, affiliates, and lessees, including the officers, agents, servants, corporations and any persons acting under, through, or for the parties agreeing hereto. Any changes in ownership or corporate status, including but not limited to any transfer of assets or real or personal property, shall not affect the responsibilities of Ameren under this Consent Agreement. If Ameren sells or otherwise transfers its business or the real estate that is the situs of the Energy Centers referenced in this Consent Agreement, then Ameren shall cause as a condition of such sale or transfer, that the buyer will assume the obligations of Ameren under this Consent Agreement in writing. In such event, Ameren shall provide thirty (30) days prior written notice of such assumption to the Department.

11. For any plan or submittal that is required and/or subject to Department approval under this Consent Agreement, Ameren shall submit such in writing, either by electronic mail, United States Postal Service or other carrier service. The Department may approve, disapprove, require revisions, or otherwise modify any such plan or submittal. Any such Department decision shall be conveyed in writing to Ameren. Disapproval may result in orders or pursuit of other forms of relief by the Department. If the Department requires revisions, Ameren shall submit a revised version of the plan or submittal within 10 business days after receiving notice of the Department's required revisions, or within such other timeframe as the Department may specify. If the Department approves or modifies in writing such plan or submittal, it shall become enforceable under this Consent Agreement, and Ameren shall commence work and implement such approved or modified plan in accordance with the schedule and provisions contained therein. Notwithstanding, the Department recognizes that timeframes within the Consent Agreement may be dependent on timely approval, disapproval or modification by the Department and Ameren reserves the right to request an extension of any of the timeframes by mutual agreement of the Department. The Department reserves the right to reasonably deny any such request.
12. This Consent Agreement shall be construed and enforced according to the laws of the State of Missouri, and the terms stated herein shall constitute the entire and exclusive agreement of the parties hereto with respect to the matters addressed herein. The parties agree that the enforceability of this Consent Agreement shall be subject to the procedures for enforcement of orders granted to the Department. The terms of this Consent Agreement supersede all previous memoranda of understanding, notes, conversations, and agreement.

13. If any provision of this Consent Agreement is found to be unenforceable in any respect, the validity, legality, and enforceability of the remaining provisions shall not in any way be affected or impaired.
14. Nothing in this Consent Agreement excuses Ameren for any future non-compliance with the laws of the State of Missouri, and the Department expressly reserves the right to address future noncompliance in any manner authorized by law.
15. This Consent Agreement will become final, effective, and fully enforceable by the Department once it is executed by each of the parties. The Department shall send a fully executed copy of this Consent Agreement to Ameren.

#### **CORRESPONDENCE AND DOCUMENTATION**

Correspondence or documentation with regard to this Consent Agreement shall be directed to the following persons, subject to change upon written notification from either party:

For the Department:

Kyra Moore  
Air Pollution Control Program  
Missouri Department of Natural Resources  
P.O. Box 176  
Jefferson City, Missouri 65102-0176

For Ameren:

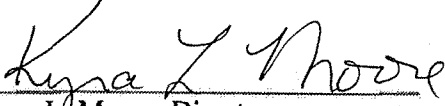
Chris Iselin  
Senior Vice President - Power Operations and Energy Management  
1901 Chouteau Avenue  
Mail Code 601  
St. Louis, MO 63103

**RIGHT OF APPEAL**

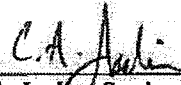
Notwithstanding the rights reserved in paragraph 2, by signing this Consent Agreement, Ameren waives any right to appeal, seek judicial review, or otherwise challenge this Consent Agreement pursuant to Sections 643.130, 643.085, or 621.250 RSMo, Chapters 536, 643, or 640 RSMo, 10 CSR 10-1.030, or any other source of law.

Agreed to:

**MISSOURI DEPARTMENT OF  
NATURAL RESOURCES**

  
Kyra L. Moore, Director  
Air Pollution Control Program

**AMEREN MISSOURI**

  
Chris Isehn, Senior Vice President  
Power Operations and Energy  
Management

Date: 3/23/15

Date: 3/23/15

## Appendix 1

### Additional QAPP Components

Ameren shall develop a Quality Assurance Plan and a Standard Operating Plan [specific to the SO<sub>2</sub> Monitoring Network] for Department approval. Quality Assurance (QA) protocols must be at least as stringent as the QA requirements of 40 CFR Part 58 and the Quality Assurance Handbook for Air Pollution Measurement Systems. Ameren shall maintain a log of all quality assurance activities performed and reported as required in the QAPP on all SO<sub>2</sub> monitors and meteorological monitoring stations. Ameren shall provide the Department with adequate notice and opportunity to observe or audit such quality assurance activities. The parties further agree that the QAPP shall contain or otherwise address the following:

- a. Operation of the ambient SO<sub>2</sub> monitoring network shall commence as soon as practical following approval by the Department but no later than December 31, 2015. So as to facilitate the Department's timely approval of the monitoring network, Ameren shall:
  - i. Submit final network site recommendations to the Department, which shall be subject to Department approval, no later than **May 1, 2015**. At a minimum, Ameren's recommendation shall include:
    1. The date that sampling is expected to commence. The parties agree that sampling will begin no later than the commencement of operation of the SO<sub>2</sub> monitoring network;
    2. A list of the information to be reported (e.g. hourly concentrations); and
    3. Justification for monitoring area site selections/recommendations.
  - ii. Within 60 days of approval of the monitoring site locations, Ameren shall submit a Quality Assurance Project Plan ("QAPP") to the Department, which shall be subject to Department approval. Ameren shall use the Air Pollution Control Program's QAPP template and QAPP review checklist to prepare the QAPP submittal satisfying this Consent Order.
  - iii. Notify the Department that network site shelters and structures, as appropriate, are operational. This notification shall also confirm that network equipment and instrumentation are both installed and calibrated, no later than **December 31, 2015**. The Department shall be notified and be present during initial calibration of the monitoring stations.
  - iv. Notify the Department that the approved network is reporting valid data no later than **December 31, 2015**.

- b. The parties agree that the number and location of SO<sub>2</sub> monitors and meteorological station(s) shall ensure that the approved SO<sub>2</sub> monitoring network represents ambient air quality in areas of maximum SO<sub>2</sub> impact from the Rush Island Energy Center. Requirements specific to SO<sub>2</sub> monitoring and MET monitoring station(s) located in the state of Illinois shall be prescribed per an approved QAPP.
- c. The parties agree that Ameren shall provide the Department access to a database to review preliminary data as soon as practicable and report to the Department quality assured data collected in accordance with the reporting schedule outlined in the Department-approved QAPP.
- d. Following monitor installation, Ameren shall be responsible for monitor maintenance and quality assurance activities. Ameren shall provide the Department with adequate notice and opportunity to observe or audit such quality assurance activities.
- e. In conjunction with the requirements of the Department-approved SO<sub>2</sub> Monitoring Network, the parties agree that Ameren shall keep records of the daily hours of operation and the amount of SO<sub>2</sub> emissions emitted from each emission unit at Rush Island Energy Center. Ameren shall record this information for the duration of the SO<sub>2</sub> monitoring program. Ameren shall submit this information to the Department with the SO<sub>2</sub> monitoring network data as specified by the Department-approved QAPP.
- f. The parties agree that prior to removal of any part of the SO<sub>2</sub> Monitoring Network, Ameren must submit and the Department must approve a formal request to discontinue all or part of the Department-approved SO<sub>2</sub> Monitoring Network. The complete SO<sub>2</sub> Monitoring Network shall remain in operation until approval for discontinuation has been granted. The parties agree that Ameren's formal request shall contain at a minimum:
  - i. A comparison of the monitored data [specifically data representing typical operations] versus SO<sub>2</sub> operational parameters data collected at Rush Island Energy Center. The parties agree that the Department retains approval authority regarding any emission data substitution methods and/or data substitution models to address missing data and/or data completeness criteria, such as but not limited to data substitution specific to maximum potential SO<sub>2</sub> concentrations and substitution methods allowed per 40 CFR Part 75;
  - ii. An analysis of the ambient monitored data with respect to the 2010 SO<sub>2</sub> NAAQS standard; and
  - iii. A detailed technical discussion of Rush Island Energy Center's impact on the monitored data that meets the following specifications:
    - 1. Data collection from SO<sub>2</sub> monitors shall satisfy a minimum seventy-five percent (75%) data completeness requirement. Data collection from on-site meteorological stations shall satisfy a minimum ninety percent (90%) data completeness requirement. If both of these data

requirements are not satisfied, monitoring must continue until these minimum requirements are met; and

2. The monitors only record annual 4<sup>th</sup> highest SO<sub>2</sub> concentrations less than eighty-five percent (85%) of the standard for a period of at least three (3) consecutive years. As part of this request, Ameren will submit to the Department an analysis of ambient concentrations and SO<sub>2</sub> emissions information evaluating the relationship of Rush Island Energy Center's SO<sub>2</sub> emissions to the measured ambient SO<sub>2</sub> data.

## Appendix 2

### Model Performance Analysis

This Appendix shall apply if default modeling options [as prescribed by the most current USEPA AERMOD guidance documents] are not used when an ambient air quality analysis is conducted. Any deviation from default modeling options per the most current version of the EPA approved air quality dispersion models [i.e., AERMOD, AERMAP and AERMET] shall be addressed according to the following model performance analysis requirements. Pursuant to Department review and approval, such non-default options shall be used to reconcile modeled impacts that do not coincide with monitored values.

- a. Ameren shall conduct a study to compare SO<sub>2</sub> modeled and monitored concentrations at the Rush Island Energy Center. The purpose of the study is to collect data and to use the data to evaluate the performance of the AERMOD model at predicting air quality concentrations in the area surrounding the Rush Island Energy Center.
- b. Ameren shall submit a model performance analysis protocol to the Department 45 days prior to conducting the ambient air quality analysis. Subject to Department review and approval, the model performance analysis protocol shall contain, at a minimum, an evaluation:
  - i. To determine if the model is overestimating or underestimating the measured concentrations.
  - ii. To measure the accuracy of the model in estimating the observed concentrations on a paired in time and space basis.
  - iii. To determine the viability of the model in estimating the upper percentile concentrations regardless of time and space (non-paired), i.e., predicting the peak concentrations.
  - iv. To resolve discrepancies between the modeled and observed concentrations (e.g. use of beta options).

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